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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,089	08/19/2003	John Z. Wang	839-1479	3067
30024	7590	06/28/2004	EXAMINER	
NIXON & VANDERHYE P.C./G.E. 1100 N. GLEBE RD. SUITE 800 ARLINGTON, VA 22201			LIN, KUANG Y	
			ART UNIT	PAPER NUMBER
			1725	

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/643,089	Applicant(s) WANG, JOHN Z.	
	Examiner Kuang Y. Lin	Art Unit 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7,9 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7,9 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4-7, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art as set forth in pages 1-2, and 4-5 of the specification as well as figures 1-4 of the drawing and further in view of EP 1,022,434.

The admitted prior art substantially show the invention as claimed except that cross-section of the support pins are not in an elliptical shape and that it does not show how the support pins are joined to the main core. However, EP '434 teaches to provide core rods for stiffing the adjacent ceramic coolant passages and having an elliptical cross-section in the core rods for forming elliptical, rather than circular transverse openings in the turbine bucket. Forming the openings in elliptical shape has an advantage of minimizing stress concentration in the bucket. Thus, it would have obvious that any opening formed in the turbine bucket, including the one created by the support pins adapted to support the core inside the shell die, shall also be in elliptical shape to minimizing stress concentration in view of EP '434. Obviously, in order to create an elliptical shape opening a support pin having an elliptical shape in cross section shall be used. Thus, in view of the prior art teachings as a whole, it would have been obvious to form the openings, created by the support pins, in the turbine bucket of the

admitted prior art in an elliptical cross-sectional shape by using a support pin having an elliptical shape in cross section to minimize the stress concentration in view of EP '434. With respect to the claimed feature of using fillet to join the support pin to the main core, it would have been obvious to use any joining method for joining the support pins to the main core as long as the pins can be securely attached to the main core.

3. Applicant's arguments filed June 2, 2004 have been fully considered but they are not persuasive.

a. Applicant in page 7, last paragraph through page 8, first paragraph of remarks stated that EP '434 does not disclose that cross ties are also used to fix or support the core in the shell die. However, the admitted prior shows to provide support pins for supporting the core. Since EP '434 discloses that the round cross ties create undesirable stress concentrations and the use of elliptically shaped quartz rod within the ceramic core to minimize or eliminate the stress concentration, it would have been obvious to also use an elliptically shaped support pins in the shell die of EP '434 in view of the advantage.

b. Applicant in page 8, second paragraph of the remarks stated that EP '434 does not suggest any concern for or recognition of benefits in reducing stress in core supports. However, as the admitted prior art uses an elliptically shaped support pins for forming elliptical openings in view of EP '434, the elliptically shaped support pins of the admitted prior art will also has the property of reduced stress concentration.

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuang Y. Lin whose telephone number is 571-272-1179. The examiner can normally be reached on Monday-Friday, 10:00-6:30,.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas X Dunn can be reached on 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kuang Y. Lin
Primary Examiner
Art Unit 1725

6-25-04